

WHAT IS CLAIMED IS:

- 1 1. A method comprising the steps of:
 - 2 accessing a first index table;
 - 3 accessing a first plurality of macroblock information in a first order at a
 - 4 video decoder to generate a first decoded image, wherein the first
 - 5 order is based upon the first index table and the first plurality of
 - 6 macroblock information are associated with a source macroblock;
 - 7 accessing the first plurality of macroblock information to generate a first
 - 8 estimated destination motion vector; and
 - 9 wherein the macroblock information includes motion vector and
 - 10 quantization information.
- 11 2. The method of claim 1, further comprising the step of:
 - 12 generating an encoded a destination video image based upon the first
 - 13 decoded image and the estimated destination macroblock information.
- 14 3. The method of claim 1, wherein the first index table includes a plurality of
- 15 entries, each one of the plurality of entries comprising a pointer portion to
- 16 hold a value indicating a location of a source macroblock information with
- 17 an end of destination macroblock portion to hold a value indicating if an
- 18 entry of the plurality of entries is the last entry associated with the first
- 19 destination macroblock information.
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- 23 4. The method of claim 1, wherein each entry of the plurality of entries has a
- 24 predetermined size.
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- 26 5. The method of claim 4, wherein the predetermined size of each entry is the
- 27 same.
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29 6. The method of claim 1, wherein each entry of the plurality of entries are
30 arranged relative to each other entry of the plurality of entries to indicate
31 the first order.

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33 7. The method of claim 1 further comprising the step of:
34 generating a first estimated macroblock information for a first destination
35 macroblock, wherein the first destination macroblock information
36 is based upon at least a portion of the first plurality of macroblock
37 information and the first destination macro block is downsampled
38 relative to the source macro block.

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40 8. The method of claim 5, wherein the first index table includes a plurality of
41 entries, each one of the plurality of entries comprising a pointer portion to
42 hold a value indicating a location of a source macroblock information and
43 an end of destination macroblock portion to hold a value indicating if an
44 entry of the plurality of entries is the last entry associated with the first
45 destination macroblock information.

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47 9. The method of claim 8, wherein each entry of the plurality of entries are
48 arranged relative to each other entry of the plurality of entries to indicate
49 the first order.

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51 10. The method of claim 9, wherein each entry of the plurality of entries has a
52 predetermined size.

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54 11. The method of claim 10, wherein the predetermined size of each entry is the
55 same.

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57 12. The method of claim 7 further comprising the steps of:
58 accessing a second index table;

59 accessing the first plurality of source macroblock information in a second
60 order at the video decoder to generate a second decoded image,
61 wherein the second order is based upon the second index table and
62 the first plurality of source macroblock information are associated
63 with a source macroblock;
64 accessing the second plurality of source macroblock information to
65 generate a second estimated destination macroblock information.
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67 13. The method of claim 10 further comprising the steps of:

68 generating a first macroblock based upon the first estimated destination
69 vector, and a second macroblock based upon the second estimated
70 destination vector, the first and second macroblocks are to be
71 displayed simultaneously in real time.
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- 1 14. A method comprising the steps of:
2 storing video source macroblock information for each source macroblock
3 of a first plurality of source macroblocks;
4 determining an index table having a plurality of entries, the index table
5 based upon a video source resolution and a video destination
6 resolution, wherein a location of each source macroblock
7 information for each macroblock is referenced by a corresponding
8 entry of the index table; and
9 storing the index table.
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- 11 15. The method of claim 14 further comprising the step of:
12 determining a data instruction packet to be processed by a portion of a
13 video transcoder, wherein the data instruction packet identifies a
14 location of the index table.
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- 16 16. The method of claim 14, wherein the portion of the video transcoder is a
17 video decoder portion.
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- 19 17. The method of claim 14, wherein the portion of the video transcoder is a
20 video encoder portion.
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- 22 18. The method of claim 14, wherein the portion of the video transcoder is a
23 video encoder portion and a video decoder portion.
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- 25 19. The method of claim 14 wherein each entry of the index table has a common
26 size.
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- 28 20. The method of claim 14, wherein the index table includes an end of
29 macroblock indicator to indicate a portion of the index table associated
30 with a destination macroblock.
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32 21. The method of claim 20, wherein the end of macroblock indicator is stored as
33 a value within a field of an index table entry.
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Patent # 3,466,660

1 22. A system comprising:

- 2 a first input port to receive source video data;
- 3 a controller portion coupled to the first input port to determine macroblock
- 4 information data corresponding to the received source video data,
- 5 wherein the macroblock information includes motion vector and
- 6 quantization information;
- 7 a first memory control portion coupled to the controller portion to save a
- 8 plurality of source macroblock information corresponding to the
- 9 source video data; and
- 10 an index table generator coupled to receive a size indicator of a destination
- 11 image and to generate an index table identifying a first portion of
- 12 the plurality of source macroblock information to be used to
- 13 generate a first destination source vector, the index table based
- 14 upon the size indicator of the destination image.

15 23. The system of claim 21 further comprising:

- 16 a second memory control portion coupled to retrieve source macroblock
- 17 information based upon index table entries;
- 18 an encoder portion coupled to the second memory control portion to
- 19 generate destination vectors based upon the retrieved source
- 20 macroblock information.
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23 24. The system of claim 21, wherein the index table generator is implemented

24 using a general purpose processor core.